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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,124	07/31/2001	Kazuya Iwamoto	MAT-8113US	4263

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EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary

Application No.

09/807,124

Applicant(s)

IWAMOTO ET AL.

Examiner

Jonathan S. Crepeau

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-- the MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-11 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-11. Claims 4-11 are allowed. Claims 1-3 remain rejected under 35 USC §102 for the reasons of record. Accordingly, this action is made final.

Claim Rejections - 35 USC § 102

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Burns (U.S. Patent 4,835,238). Regarding claims 1 and 2, the reference teaches a polymer having carbon atoms and Si-N-Si bonds in its skeleton (see col. 7 line 50). Regarding the preamble limitation “a lithium-ion conductive solid polymer electrolyte,” the polymer of Burns is capable of functioning as such and thus meets the limitation.

Regarding claims 2 and 3, although the reference does not teach the claimed process limitations, the patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Once a rationale is provided tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art

product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See also MPEP §2113. Accordingly, the instant claims are not considered to be distinguished over Burns.

3. Claims 2 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 9-263637. Regarding claim 2, the reference teaches a lithium secondary battery comprising a lithium ion conductive solid polymer electrolyte (see paragraph 11). Regarding claims 2 and 3, the electrolyte is formed by the polymerization of a mixture consisting of an organic compound and lithium bis(trimethylsilyl)amide (see abstract; paragraph 24). Although the reference does not expressly teach that the organic compound comprises a carbon-carbon double bond (it teaches that it comprises a carbon-carbon single bond; see paragraph 29), the patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Response to Arguments

4. Applicant's arguments filed February 5, 2004 have been fully considered but they are not persuasive. Regarding the Burns reference, Applicants assert that "[n]othing in Burns discloses or suggests that the polymers are capable of functioning as lithium-ion conductive solid polymer

electrodes.” The Examiner acknowledges that Burns does not contain any express teachings regarding the ion conductivity of the polymers. However, due to the structure of the polymer shown at column 7, line 50, it is apparent that this polymer would be capable of conducting cations. As shown in the structure, the polymer contains N-H bonds in the crosslinked sections thereof. It is submitted that these hydrogen atoms are capable of becoming mobile and that the increased electron density at each nitrogen atom would allow these nitrogen atoms to function as “negative” sites for attracting and transferring cations, including lithium ions. As such, it is maintained that the polymer of Burns is capable of functioning as a lithium ion-conductive electrolyte.

Regarding claims 2 and 3, which define the polymer as being made by polymerizing lithium bis(trimethylsilyl)amide as one of the reactants, Applicants state that Burns’ products do not contain lithium. However, it is first submitted that the product of Burns does not have to contain lithium in order to be capable of conducting lithium ions. Second, as noted above, claims 2 and 3 are product-by-process claims which define the polymer in terms of how it is made. The claims do not recite that the final product contains lithium. It is submitted that even though one of the reactants contains lithium, this does not necessarily require that the final product must contain lithium. As such, it is believed that Burns still properly anticipates claims 2 and 3.

Additionally, Applicants state with respect to the JP ‘637 reference that the polymer produced in this reference does not have an Si-N-Si bond. However, it is submitted that claims 2 and 3 do not recite that the final product must contain such a bond. Further, Applicants assert

that “[a]lthough the Office does not expressly say so, the Office appears to be asserting that this product is the same as that produced by applicants' process.” To clarify, it is the Examiner's position that the product of JP ‘637 is capable of being produced by the instantly claimed process. Applicant's position appears to be that the claimed process can only result in a polymer with an Si-N-Si bond. However, as Applicants' process encompasses a large variety of reactants, there is not believed to be sufficient evidence yet of record to indicate that the process must necessarily result in polymers having Si-N-Si bonds. As such, it remains the Examiner's position that Applicant's process is capable of making other polymers, such as that disclosed in JP ‘637, and the rejection over this reference is maintained.

Allowable Subject Matter

5. Claims 4-11 are allowed.
6. The following is an examiner's statement of reasons for allowance (these reasons were set forth in the previous Office action but are reiterated herein):

Independent claim 4 recites a lithium secondary battery comprising a lithium ion conductive solid polymer electrolyte comprising a Si-N-Si bond in the polymer skeleton. JP 10-208747, the closest prior art, teaches a battery comprising an inorganic polymer with an –Si-Si-NH- repeating unit in Table 1. However, as disclosed in the abstract and paragraph 16, this polymer functions as an electron-conducting binder in the electrode. Since an electrolyte needs

to be an electrically insulating material, the electrically conductive polymer of JP '747 is not capable of functioning as an electrolyte. Accordingly, claim 4 is allowable.

Conclusion

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

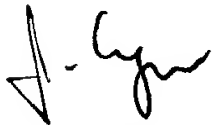
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the

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organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Patent Examiner
Art Unit 1746
May 11, 2004